



NOTES FROM THE DIRECTOR

No. 131

January 29, 1982

WINTER WEATHER BRINGS OUT THE BEST

BARC's essential employees responded in an exemplary fashion to the cold weather and heavy snows during January. It was a real pleasure to see all of the Center roads clear and open for regular traffic on Thursday morning, January 14, after the most severe snowstorm. In addition, the daytime essential work force very effectively carried out all of their necessary duties. Everyone at the Center should be appreciative of the fine efforts of our essential employees.

DONATIONS TO CHILDREN'S HOSPITAL

As in past years, the employees of BARC responded very generously to the call for donations to Children's Hospital in lieu of Christmas cards to coworkers. We presented a check to the hospital in the amount of \$770.00. We thank all employees who donated to this worthy cause, especially the employees of the Maintenance and Construction Branch, Division of Operations, who were our most generous contributors.

BELTSVILLE SYMPOSIUM VII, MAY 16-19, 1982

Second announcements of the Beltsville Symposium VII, Genetic Engineering: Applications to Agriculture, are available in Room 116, Building 011A, BARC-W. USDA employees at BARC need not pay the registration fee. They should, however, send in their registration form if they wish to attend. Non-paying BARC registrants will not be eligible for receiving a free symposium volume. They may, however, order one at the registration desk during the symposium.

COMBINED FEDERAL CAMPAIGN

Congratulations are in order to the Plant Physiology Institute for exceeding their contribution goal by 10 percent! Sorry for the omission in the December issue of the "NOTES FROM THE DIRECTOR."

COOPERATIVE RESEARCH

The 1980 "USDA Report and Recommendations on Organic Farming" continues to have both a national and international impact. This is further evidenced by the fact that the Report has now been translated into Spanish and Japanese. We understand that a German translation is also in progress.

OUTSTANDING VISITING SCIENTIST PROGRAM

I have recently been informed about the outstanding Visiting Scientist Program in the Pesticide Degradation Laboratory, AEQI. Philip C. Kearney, Chief of the laboratory, has identified the following visiting scientists and their research projects:

<u>Name and Country</u>	<u>Research Project</u>	<u>Collaborating Scientist</u>
Dr. P. S. Dubey, India	Aquatic Microecosystem Models	<u>A. R. Isensee</u>
Dr. D. Edwards, USA (Ohio)	Microbial Degradation of Carbofuran	<u>D. D. Kaufman</u>
Mr. P. Mastradone, USA (MD)	Arsenic Cycling in the Environment	<u>E. A. Woolson</u>
Dr. V. Pavanadasivan, Sri Lanka	Organic Arsenicals in Vegetable Crops	<u>E. A. Woolson</u>
Ms. P. Petburanin, Thailand	Degradation of Carbamates in Soils	<u>D. D. Kaufman</u>
Mr. Q. Zeng, China (PRC)	UV Pretreatment and Soil Metabolism of Chlorinated Organic Waste Products	<u>P. C. Kearney</u>
Dr. Josef Zeyer, Switzerland	Microbial Degradation - Trifluralin, Chloroanilines, Etc.	<u>P. C. Kearney</u>

Such a program speaks very well for the national/international reputation of the laboratory's research program and scientists.

NEW POTATO VARIETY RELEASED

The ARS Vegetable Laboratory at Beltsville, and the Agricultural Experiment Stations of Florida, Maine, Michigan, New Jersey, New York, and the Virginia Truck and Ornamentals Research Station, Norfolk, Virginia, have released the potato clone B6987-184 as the cultivar CHIPBELLE. CHIPBELLE is a sister selection to cultivars Atlantic and Belchip, and all were selected from the cross Wauseon x B5141-6. Wauseon was selected as the female parent, primarily, because of its resistance to the golden nematode. B5141-6 was used as the male parent because of its high solids content and excellent chipping characteristic.

CHIPBELLE is highly resistant to virus X, tuber net necrosis caused by late current season infection with the leaf roll virus, race 1 of late blight, tuber internal necrosis caused by high soil temperature, and the golden nematode. CHIPBELLE has not shown unusual susceptibility to any major potato disease. CHIPBELLE is susceptible to damage by the herbicide Sencor (metribuzin), particularly if applied through overhead irrigation. CHIPBELLE is late in maturity. CHIPBELLE processes into a superior light-colored chip directly from extended storage at 45° F. Chip oil content is minimal compared to other cultivars, in part, because of its high total solids content.

BARC COMMITTEE CHANGES

Sanford "Mac" McGuire has been appointed Chairman, Animal Operations Safety Committee, and Animal Operations representative to the BARC Safety Committee, replacing John Grinsted.

James "Jack" Murray, Field Crops Laboratory, has replaced Martin Kulik, Seed Research Laboratory, as the PGGI representative on the BARC Greenhouse Management Committee.

PERSONNEL

H. Ray Gamble has recently joined the Nonruminant Parasitic Diseases Laboratory, API. Dr. Gamble's research is on the immunochemistry of Trichinella spiralis antigens and the application of genetic engineering technology to the production of antigens important in diagnosis and vaccination. Previously, Dr. Gamble was a research associate at the University of Maryland and the University of Massachusetts. Dr. Gamble obtained a Ph. D. in biochemical parasitology at the Ohio State University in 1980.

HONORS AND AWARDS

Cash Awards:

Bouma, John C., Animal Operations Unit.

Herlich, Harry, Animal Parasitology Institute.

Snyder, Freeman W., Light and Plant Growth Laboratory, PPHI.

Quality Increases:

Henson, Lawrence A., Jr., Nonruminant Helminthic Diseases Laboratory, API.

Hubbard, Suzanne M., Animal Improvement Programs Laboratory, ASI.

Promotion to Supergrade:

In December, Karl H. Norris, Chief, Instrumentation Research Laboratory, HSI, was promoted to ST-16 (Scientific and Technical Pay Plan). Mr. Norris has achieved worldwide recognition for his research accomplishments. His agricultural research career with USDA spans three decades and he has published more than 80 papers on a wide variety of subjects. During this period, he has served as the leader of a research program to develop instruments to measure the quality of agricultural products. Many of these developments are now being applied in the food industry, and their impact has been significant as evidenced by the numerous awards which he has received from government, private, and international organizations.

Honors:

A. Morgan Golden, Nematology Laboratory, PPI, has been elected honorary member of the Florida Nematology Forum, in recognition of his outstanding service to the science of nematology.

Honors: (continued)

Richard H. Foote, Systematic Entomology Laboratory, IIBIII, located at the U.S. National Museum, Washington, D.C., has been selected by the Registry for the American Registry of Professional Entomologists for the "Outstanding Entomologist Award in Systematics" in 1981. The award was presented at the organization's annual meeting in San Diego, California, in November.

EMPLOYEE ACTIVITIES

Joseph F. Urban, Jr., Nonruminant Parasitic Diseases Laboratory, API, gave an invited seminar entitled "Immunological Studies on Swine Ascariasis" at the University of Pennsylvania's School of Veterinary Medicine, on January 12.

Martin Jacobson, Chief, Biologically Active Natural Products Laboratory, AEQI, spent the period November 12-22, 1981, in India, where he attended the Heliothis Workshop at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in Hyderabad, and presented an invited paper entitled "Potential Role of Natural Product Chemistry Research in Heliothis Management" and chaired a session on host plant resistance. He also visited and presented a seminar at the Indian Agricultural Research Institute, New Delhi. He then continued on to Pakistan, where he reviewed a PL-480 project entitled "Screening of Indigenous Plants for Repellents Against Stored Grain Insects" at the Nuclear Institute for Agriculture and Biology, in Faisalabad, and presented a seminar. Mr. Jacobson also attended the National Meeting of the Entomological Society of America, in San Diego, November 30 to December 4, where he comoderated a conference on "Feeding and Development Inhibition" with Robert E. Redfern, Livestock Insects Laboratory, AEQI. In Los Angeles, he conferred with personnel in the California Department of Food and Agriculture on medfly attractants.

VISITORS

Colorado--Mr. Momodu M'Boob, a special student from Gambia and currently enrolled in Animal Science at Colorado State University, Ft. Collins, visited BARC recently. Mr. Momodu was interested in animal nutrition--especially feed and forage analyses--as he will be in charge of establishing and running such a lab when he returns to his country. He reviewed analytical techniques, methodology, and equipment related to feeds and forages at several laboratories at BARC.

England--Mr. Walter Nightingale and Dr. Peter Coggan, International Pheromones, Ltd., London (a subsidiary of Borregaard Industries, Sarpsborg, Norway), recently visited members of the Biologically Active Natural Products Laboratory, AEQI, to discuss fruit fly attractants.

Germany--Dr. Ulrich Schlemmer, Federal Research Center for Nutrition of the Federal Republic of Germany, spent the 4 weeks between November 16 and December 11 visiting the Carbohydrate Nutrition Laboratory of the Beltsville Human Nutrition Research Center. Dr. Schlemmer's visit emanated from the American-German cooperative agreement in the field of agricultural science and

technology. The major purpose of Dr. Schlemmer's visit was to become familiar with the methodology being used to analyze for dietary fiber, and to explore areas of mutual research concerning the effects of dietary fiber on human health.

Israel--Dr. Isaac Kirson, Department of Agricultural Biochemistry, Hebrew University, Rehovot, visited with Martin Jacobson, Biologically Active Natural Products Laboratory, AEQI, to discuss joint phytochemical research. Mr. Jacobson was also visited by Dr. Moshe Kehat and Dr. E. Gurevitz, Agricultural Research Organization, The Volcani Center, Bet Dagan, to discuss sex pheromones and antifeedants.

Tanzania--Dr. Abel O. Moshi, Tropical Pesticides Research Institute, Arusha, visited with Martin Jacobson, Biologically Active Natural Products Laboratory, AEQI, to discuss a cooperative program on the chemistry of insecticidal plants.

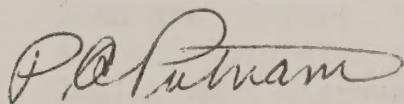
VISITOR UNIT QUARTERLY TABULATION

During the quarter ending December 31, 1981, the Visitor Unit reports the following information:

<u>No. of Visitors</u>	<u>High Level/Professional Group/Individuals</u>	<u>Students</u>	<u>Other</u>	<u>Countries Represented</u>
5,750	448	612	4,690	37

CY 1981 VISITOR TOTALS

<u>No. of Visitors</u>	<u>High Level/Professional Group/Individuals</u>	<u>Students</u>	<u>Other</u>	<u>Countries Represented</u>
16,410	2,426	3,039	10,945	151



P. A. PUTNAM, Director
Beltsville Agricultural Research Center



NOTES FROM THE DIRECTOR

No. 132

February 26, 1982

HEALTH SAFETY CHECK-UPS

A new health monitoring pilot program for employees at the Beltsville Agricultural Research Center (BARC) was started on February 4, 1982.

Agricultural research workers, like their counterparts in the agricultural industry, utilize chemicals and other biological materials that can be hazardous. With a regular screening process, unnecessarily dangerous work areas or procedures may be corrected before serious problems develop. Although participation in the program is voluntary, more than 180 employees have signed up for the first series of tests.

Mobile facilities, staffed by clinical technicians, were provided by Industrial Health, Inc. (IHI), of Palo Alto, California, under contract with the U.S. Department of Agriculture. The results of all tests are to be evaluated by IHI's medical staff. Test results which are not in normal ranges will be assessed for job relationship. Any found to be job related will be brought to the attention of USDA health and safety officials. The employee's workplace will then be evaluated for sources of exposure, and this exposure will be eliminated or limited to nonhazardous levels. Each employee's record will be maintained at BARC and will be compared from year to year.

COOPERATIVE RESEARCH

The value of the predictive power of biosystematics for planning biocontrol research was analyzed in a presentation "Symbiosis of Biosystematics and Biological Control" given at BARC Symposium V by Lloyd Knutson, Chairman, IIBIII. New weapons in the arsenal of biocontrol agents against the gypsy moth are current, important examples of this predictive capability. The new agents, Apanteles flavicosis and Apanteles indiensis, parasitic wasps from India, were discovered, classified, and named by Paul M. Marsh, Chief, Systematic Entomology Laboratory, IIBIII, in a recent paper in the Annals, Entomol. Soc. Amer., THE BRACONID PARASITES OF THE GYPSY MOTH. Based on their taxonomic position and the collection data which indicated they were reared from a moth closely related to the gypsy moth, Dr. Marsh predicted that the wasps may be useful as natural enemies of the gypsy moth. The specimens had been collected in 1964 and 1965 during a PL-480 project in India. Subsequently, Dr. Roger Fuester, research entomologist at the ARS Beneficial Insects Research Laboratory, Newark, Delaware, contacted Dr. T. Sankaran, Director of the Indian Station of the Commonwealth Institute of Biological Control Bangalore, proposing that these species be collected for shipment to the U.S. With the assistance of Drs. D. G. McHaffey and Robert Casady, International Research Division, OICD, a Special Foreign Currency contract was established for this purpose and the

collections were made during May-June 1981. The parasites obtained were shipped by air freight to Newark where they were studied in quarantine by Dr. Fuester. Production research was then undertaken on Apanteles flavicoxis at the New Jersey Department of Agriculture Laboratory in Trenton; the Pennsylvania Bureau of Forestry in Harrisburg; and the Newark laboratory. Producing as many as 300 wasps per gypsy moth larva, the new parasite looks very promising as a natural enemy, and may also be used for mass release against the gypsy moth.

PLANT INTRODUCTION OFFICE GOES INTERNATIONAL

While extensive domestic and foreign contacts are "old hat" for the Plant Introduction Office, Germplasm Resources Laboratory (GRL), PGGI, 1981 held a stronger than usual international flavor. George A. White first reviewed germplasm programs and needs in Brazil, Costa Rica, and Mexico as part of a small AID Project on seed and plant materials. Next, he served as a consultant to the International Board for Plant Genetic Resources (IBPGR), FAO, Rome, at a technical conference on crop genetic resources. The United Nations Development Program, FAO, then asked Dr. White to consult with the fledgling Institute of Plant Introduction and Genetic Resources, Sadovo, Bulgaria, for a week. He found that the leadership of the Institute was in excellent hands under Professor K. Kostov. Exchanges of information, ideas, and of specific plant materials were agreed upon. In early December, the GRL hosted a joint panel meeting of the U.S.-Japan National Resources Project on Forage Germplasm Exchange and Evaluation. The Japanese participants were: Drs. N. Mochizuki, National Grasslands Research Institute, Nishinausuno, and S. Ueda, Hokkaido National Agricultural Experiment Station, Sapporo. BARC participants included: Drs. G. E. Carlson (NPS/Forages); J. B. Powell (Assistant Director, BARC, and U.S. panel member); G. A. White (chairman of the U.S. panel); J. H. Elgin (Chief, Field Crops Laboratory and U.S. panel member); A. J. Oakes (GRL); and J. J. Murray (turfgrass specialist of the FCL). The Japanese visitors, Dr. White, W. C. Templeton, and staff from the U.S. Regional Pasture Research Laboratory, University Park, Pennsylvania, discussed forage crop research.

Dr. White is planning a trip to the Nordic Gene Bank, Lund, Sweden, where he will make a presentation on the status of the U.S. Pisum (pea) germplasm collection with emphasis on computerization of passport data. This workshop on Pisum germplasm is jointly sponsored by IBPGR and the Nordic Gene Bank.

INTERREGIONAL POTATO IMPROVEMENT WORKING GROUP MEETS AT BARC

Dr. Melvin R. Henninger, Rutgers University, New Brunswick, New Jersey; Mr. James Watts, Wise Foods, Berwick, Pennsylvania; Dr. Donald Halseth, Cornell University, Ithaca, New York; and Dr. Martin P. Mascianica and Mr. Carroll P. Savage, Virginia Truck and Ornamentals Research Station, Painter, Virginia, met with Raymon E. Webb, Chief, Vegetable Laboratory, HSI, on January 6 and 7 to review potato research results for 1981 and finalize research plans for 1982.

MEMORIAL FUND ESTABLISHED

Enthusiastic support has been received from Dr. John Boyer and other members of the executive board of the American Society of Plant Physiologists (ASPP) in an effort to establish a permanent "Morris Lieberman Endowment Fund," to be administered by ASPP. The funds are to be used in accordance with the wishes of Mrs. Lieberman to enhance educational opportunities for science students in this country by providing travel funds to international meetings. Details are now being worked out and should be available for distribution shortly. In the meantime, donations to the Morris Lieberman memorial fund may be sent to ASPP, East Gude Drive, P. O. Box 1688, Rockville, Maryland 20850. Checks are to be made payable to "ASPP - Lieberman Travel Fund." For further information, call W. J. Meudt (34-43062), or A. Mattoo (34-44471).

EMPLOYEE ACTIVITIES

Lekh R. Batra, Mycology Laboratory, PPI, has been invited by the National Research Council to serve as a member of the newly formed U.S. National Committee for the International Union of Microbiological Societies. His term will extend until the end of June 1982. The U.S. Committee will represent interests of American microbiologists in the International Union.

Charles D. Foy, Plant Stress Laboratory, PPHI, conducted two invitational seminars and consulted with staff and graduate students in the Department of Agronomy, Iowa State University, Ames, Iowa, in January. The lectures were contributions to a seminar series on "Plant Breeding Solutions for Soil Stress Problems." Papers presented were entitled: "Plant Adaptation to Mineral Stress in Problem Soils," and "The Physiology of Plant Adaptation to Mineral Stress." Both will be published in the Iowa Journal of Research.

HONORS AND AWARDS

Cash Awards:

Ballantyne, Ann M., Germplasm Resources Laboratory, PGGI.
Clevenger, Sandra H., Horticultural Crops Quality Laboratory, HSI.
Ingber, Bruce, Plant Stress Laboratory, PPHI.*
Keener, Elwood J., Animal Operations Unit.
Rayburn, Jane D., Parasite Classification and Distribution Unit, API.
Thomas, Alfred B., III, Animal Operations Unit.
Young, Janet M., Insect Pathology Laboratory, PPI.

*For effectively serving as Chairman of the Animal Science Institute's Safety Committee and the promotion of safe practices in the Institute's research facilities.

Honors:

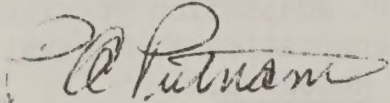
Allan K. Stoner, Chairman, Plant Genetics and Germplasm Institute, has received an Award of Achievement for "Outstanding Service to the Vegetable Industry of the State of New Jersey" from the Vegetable Growers' Association of New Jersey at their January meeting. His ingenuity and keen eye have created tomato varieties for use in the various production areas of our Nation. His releases include an impressive list--Merit, Potomac, Red Rock, Chef, ARC, Wakefield, US 28 and US 141; and in 1980--US 68. His US 28 is especially noteworthy in New Jersey where it is high yielding for farmers and tops other varieties in the solids content so necessary to the processor.

Raymond B. Taylorson, Weed Science Laboratory, AEQI, received the Fellow Award of the Weed Science Society of America at its annual meeting in Boston, Massachusetts, on February 10. Only 59 members of the Society have been named Fellows since initiation of the award in 1964. Eight of the 59 recipients have been Beltsville scientists and six others were ARS scientists. Other ARS weed scientists honored at the 1982 meeting include: Dr. Jean H. Dawson, Prosser, Washington, Fellow Award; and Dr. Roy J. Smith, Stuttgart, Arkansas, Outstanding Research Award.

Elected as Fellows to the American Association for the Advancement of Science:

Putnam, Paul A., BARC Director's Office.

Steffens, George L., Plant Hormone Laboratory, PPHI.



P. A. PUTNAM, Director

Beltsville Agricultural Research Center



NOTES FROM THE DIRECTOR

No. 133

March 29, 1982

BASIC RESEARCH AND APPLIED PROBLEMS

At a recent laboratory review, we heard a report that illustrates how expertise in a basic research lab can be utilized to address a practical problem in agriculture. Robert E. Davis, Plant Virology Laboratory, PPI, is a specialist regarding spiroplasmas--rather exotic organisms that cause plant diseases.

Horseradish production in Illinois was being impaired by an unknown disease factor and because of Dr. Davis' expertise with spiroplasmas he was asked to examine diseased specimens. His examination confirmed their suspicions that spiroplasma was the causative agent. Shortly after that, he heard through our NER Small Farms Coordinator, Mr. H. W. Kerr, Jr., that the horseradish production was increasing in Maryland.

Since horseradish is vegetatively propagated, Dr. Davis hypothesized that there was a danger of transmitting the spiroplasma-caused disease via vegetative materials. The Maryland Department of Agriculture was notified and producers were contacted. Again, samples were examined and some were, indeed, found to be infected. As a result, extra caution is now being taken by Maryland horseradish producers.

WRU BUDGET ADJUSTMENTS

A number of scientists have expressed concern and an interest in understanding the recent budget adjustments which were made for each laboratory. As you recall, three items were underbudgeted in FY 82 and each unit was asked to come up with these funds.

(1) FY 81 Pay Act Annualization. The origin of this item is from last year's Pay Act that gave employees a 9.1 percent increase. Each year (in the past) the Congress has put Pay Act money into the budget in the subsequent year to cover the increase. The NER/BARC budget was set up at the beginning of the year with the expectation that these costs would be forthcoming. However, for the first time Congress did not fund the previous year's (FY 81) Pay Act. The request for budget adjustments for the FY 81 Pay Act will bring us up-to-date on the current pay costs.

(2) Health Benefits. A cost increase for health services has occurred. The budget for FY 82 did not include this increase, therefore, an estimated amount was assessed to cover the shortfall.

(3) FY 82 Pay Cap. This originated because Congress adjusted the statutory limit for pay upward (January 1982). Some units did not receive the full impact of this adjustment, because units had budgeted employees already at the Pay Cap beginning October 1 with the 4.8 percent set aside for FY 82. This accumulated amount was used to offset the upward adjustment in Pay Cap beginning in January 1982.

YOUNG ADULT CONSERVATION CORPS

During December and January, we lost several enrollees to school and other employment. Tyrone Dade and Colleen Love both left the Arboretum to accept full-time employment with private industry. Monica Brooks, Darryl Patterson, and Henrietta Duvall returned to school. Elizabeth Agpoa is now working as an animal caretaker in our Animal Operations Unit. Debbra Vann is working as a receptionist with the Navy, and Cornelius Page is in an apprenticeship program with the General Accounting Office. We wish these former enrollees continued success in their careers.

VISITING SCIENTIST

Dr. Hiromi Fukuda, Associate Professor, Ecological Entomology, Hokkaido University, Sapporo, Japan, is a new Foreign Research Associate on assignment to the Bioenvironmental Bee Laboratory (BBL), PPI, March through December 1982. Dr. Fukuda will conduct research on pollination and population trends in honey-bee colonies, in conjunction with H. Shimanuki, Chief, BBL, and Suzanne Batra, Beneficial Insect Introduction Laboratory, IIBIII.

EMPLOYEE ACTIVITIES

Thomas E. Devine, Cell Culture and Nitrogen Fixation Laboratory, PPHI, received an invitation and travel grant from the Venezuelan Institute for Advanced Studies to participate in a 2-week course in biological nitrogen fixation. The course was presented in Caracas, Venezuela, in January. Dr. Devine presented a lecture on "Genetics and Breeding for Enhanced Symbiotic Nitrogen Fixation," and conferred with other international experts in nitrogen fixation.

Raymon E. Webb, Chief, Vegetable Laboratory, HSI, was invited by the Michigan Crop Improvement Association to present the keynote address at the Association's annual meeting, February 3 and 4, at Grayling, Michigan. Dr. Webb spoke on potato varietal improvement. The Michigan potato industry produces significant quantities of varieties recently developed at BARC, particularly, seed of the Atlantic potato variety for the Southeast where that variety now accounts for about 60 percent of the acreage grown.

Dr. Webb was also invited by the Maine Potato Commission to present a discussion on new developments in the BARC/NER potato improvement program at their Third Annual Chip Seminar, March 11 and 12, at Bangor. Of particular interest were the newly developed clones with genetic control of enzyme systems enabling processing into high-quality products direct from extended storage at 40° F. The

program's interregional approach to developing improved germplasm and varieties with resistance to abiotic and biotic stresses was also discussed. Atlantic, the popular pest-resistant chipping variety with high total solids content released from the program in 1977, ranked fifth among 22 varieties grown for certified seed in Maine during 1981.

AWARDS AND HONORS

Cash Awards:

Davidson, Ronald C., Maintenance and Construction Branch (M&CB), Division of Operations. (Sustained superior work performance of assigned duties in the M&CB, Electric Shop.)

Greene, Stuart W., Animal Operations Unit. (Sustained work performance in care, feeding, semen collection and artificial insemination of the poultry flocks of physiology and nutrition studies.)

Higgs, Harry E., Maintenance and Construction Branch (M&CB), Division of Operations. (Sustained superior work performance of assigned duties in the M&CB, Electric Shop.)

Pittarelli, George W., Tobacco Laboratory, PGGI. (Special achievement cash award for his initiative in recommending new approaches, completing complex interspecific hybridization, and conducting lab work with little supervision.)

Steffens, George L., Plant Hormone Laboratory, PPHI. (Direction of plant hormone research leading to isolation and chemical identification of brassin and synthesis of brassinolides analogs.)

Taylor, John M., Biological Waste Management and Organic Resources Laboratory (BWMORL), AEQI. (Sustained superior performance contributing to the safe and efficient operation of the BWMORL.)

Whitehead, Andrew C., Farm Management Branch (FMB), Division of Operations. (Outstanding performance of assigned duties in the research plots section of the FMB.)

Quality Increase:

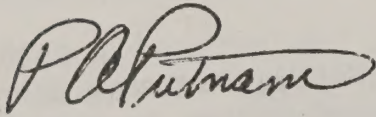
Brocker, Mary A., Chairman's Office, API. (Exceptional performance as Animal Parasitology Institute Secretary.)

Honor:

Karl H. Norris, Chief, Instrumentation Research Laboratory, HSI, recently was honored by his colleagues in the engineering community. On February 24, he received an "Engineer of the Year" award from the National Society of Professional Engineers. Mr. Norris was the representative selected from the Agricultural Research Service.

The following day, Mr. Norris was also recognized by the D.C. Council of Engineering and Architectural Societies. He received their "National Capital Award for Special Achievement" in recognition of distinguished research contributions that led to the technology for simple and rapid measurement of the quality of food products and feed grains.

Congratulations to Karl on these outstanding achievements!

A handwritten signature in cursive script, reading "P. A. Putnam". The signature is fluid and elegant, with the first letters of the first and last names being capitalized and prominent.

P. A. PUTNAM, Director
Beltsville Agricultural Research Center



NOTES FROM THE DIRECTOR

No. 134

April 27, 1982

BELTSVILLE SYMPOSIUM IN AGRICULTURAL RESEARCH

The seventh in the annual series of BARC-sponsored symposia will take place on May 16-19. It is entitled "Genetic Engineering: Applications to Agriculture." Although centered mainly around plant molecular biology, one session will deal with various commercial applications and another with genetic modification of plants via tissue culture techniques. About 550 persons from 43 States and 18 countries have already registered, making this the most popular ever in the series. Because the auditorium has a seating capacity of 540, and because we can't accurately predict how many press, other invited guests, and Beltsville registrants will attend any given session, the organizing committee hopes that the BARC registrants will graciously assure that all outside registrants are seated at the start of each session.

The symposium will open with a keynote lecture at 7:30 p.m., Sunday, May 16, in the auditorium, followed by a mixer at 8:30 p.m. in the conservatory. Monday afternoon will be devoted entirely to poster presentations, of which there will be 46--also located in the conservatory. The symposium banquet will be held Tuesday evening at the University of Maryland Adult Education Center. Information is available from Lowell D. Owens, Symposium Chairman, Room 116, Building 011A, BARC-West, (301)344-4072.

LABORATORY NAME CHANGE AND PERSONNEL REASSIGNMENTS

Plant Genetics and Germplasm Institute (PGGI):

The former Plant Taxonomy Laboratory has been renamed the Plant Exploration and Taxonomy Laboratory (PE&TL) to better reflect the current activities of this Laboratory. Gudrun M. Christenson, Sandra M. Saufferer, and Richard W. Spjut, three botanists, formerly associated with the anticancer plant collecting program, have been reassigned to the PE&TL.

Another move in PGGI involved the reassignment of A. Jack Oakes, T. Austin Campbell, and Richard E. Cooper from the Germplasm Resources Laboratory to the Economic Botany Laboratory (EBL). Their research will remain the same except that Dr. Oakes will turn over curatorship of the National Rice Collection to David H. Smith, curator, USDA Small Grain Collection. These changes group SY's more logically into Laboratories according to similar interests and assignments. The EBL will be located in Building 001, and the PE&TL will be located in Building 265.

NEW FIRE ALARM SYSTEM

The Engineering and Planning Branch, Division of Operations, has advised that the contract for installing new fire alarms in Buildings 001, 005, 177B, 301, and 303 is almost completed. These systems include an integrated circuit of heat and smoke detectors, manual pull fire alarms, automatic fire door closures, and incident location identification. Installation is completed; however, testing and calibration of the system is still being accomplished in all the buildings. Several false alarms have occurred in the last 2 months, and some may occur again as calibration of the system is continued in the next month. Any alarm should be taken seriously with immediate action to seek a safe area. However, if it is determined that a malfunction has occurred, then the matter should be reported to the Engineering and Planning Branch, X42434.

NEW EMPLOYEE

Benjamin L. Allen, P.E., has recently joined the Engineering Services Section within the Engineering and Planning Branch, Division of Operations. He will assume project management responsibility for in-house and architect/engineering designs. Mr. Allen is a native of this area and is a registered professional engineer in the State of Maryland. His education includes a B.S. degree in civil engineering from the Virginia Polytechnic Institute, and an M.S. degree in systems management from the University of Southern California. During the past 9 years he has been employed in a private consulting business in Prince George's and Montgomery Counties involving civil engineering and land planning.

HONORS AND AWARDS

Quality Increases:

Matthews, Viola C., Organic Chemical Synthesis Laboratory (OCSL), AEQI. (Excellent performance and conscientiousness in providing clerical support for scientists in the OCSL.)

Poole, Lydia R., Plant Taxonomy Laboratory (PTL), PGGI. (Effective and efficient operation of interactive computers and an exceptionally high level of sustained performance in the PTL.)

EMPLOYEE ACTIVITIES

Malcolm J. Thompson and James A. Svoboda, Insect Physiology Laboratory, PPI, participated in the "Symposium on Biochemistry and Function of Isopentenoids in Plants," March 22-24, sponsored by the USDA Western Regional Research Laboratory, Berkeley, California. The participants included about equal numbers of scientists from both USDA and universities. Discussion topics encompassed many aspects of research with isopentenoids on numerous biological systems including microorganisms, plants, insects, and vertebrates. Mr. Thompson

delivered the keynote address entitled "Contributions of USDA Scientists to the Chemistry and Biochemistry of Steroids and Other Isopentenoids." Dr. Svoboda gave a plenary talk entitled "Insect Steroids: Metabolism and Function." The symposium was stimulating and informative, and extensive discussion was possible on topics of mutual interest to scientists from a variety of disciplines.

VISITORS

California--Dr. G. Ledyard Stebbins, Professor Emeritus, University of California, Davis, visited with James A. Bunce, Light and Plant Growth Laboratory, PPHI, on March 16, to discuss temperature responses of various plant functions for crops grown at different latitudes in relation to chromosome structure.

Federal Republic of Germany--On March 15, Dr. H. Strube, manager and sugarbeet breeder, Fr. Strube Saatzucht, Söllingen, consulted with Freeman W. Snyder, Light and Plant Growth Laboratory, PPHI; Gerald E. Coe, Field Crops Laboratory, PGGI; and Gideon W. Schaeffer, Chief, Cell Culture and Nitrogen Fixation Laboratory, PPHI.

Netherlands--On March 15, Mr. M. C. G. Middelburg, sugarbeet breeder, Van Der Have Seed Company, Rilland, the Netherlands, consulted with Freeman W. Snyder, Light and Plant Growth Laboratory, PPHI; Gerald E. Coe, Field Crops Laboratory, PGGI; and Gideon W. Schaeffer, Chief, Cell Culture and Nitrogen Fixation Laboratory, PPHI.

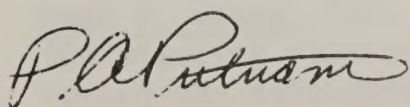
Congressional and Legislative Staff Visit:

On April 8, several members of the Congressional and Legislative Staff visited BARC and were greeted by P. A. Putnam, Director. They arrived at 10 a.m. and spent most of the day making brief stops at areas of specific interest. A windshield tour of the North Farm research plots and BARC-East was included. Scientists visited included: M. Faust, G. Schaeffer, A. Stoner, D. Smith, P. Kearney, V. Purcell, H. Herlich, and H. Danforth.

VISITOR UNIT QUARTERLY TABULATION

For the quarter ending March 31, 1982, the Visitor Unit reports the following information:

No. of Visitors	High Level/Professional Group/Individuals	Students	Other	Countries Represented
2,929	257	416	2,256	20



P. A. PUTNAM, Director
Beltsville Agricultural Research Center



NOTES FROM THE DIRECTOR

No. 135

June 22, 1982

PERSONNEL

New Laboratory Chief:

James D. Anderson has been named Chief of the Plant Hormone Laboratory, PPHI. Dr. Anderson, a native of North Dakota, received his B.S. and M.S. degrees from North Dakota State University, and his Ph. D. from Oregon State University. He joined ARS in 1967 with the Seed Quality Research Laboratory, Market Quality Research Division. In 1972, he joined the Post Harvest Physiology Laboratory, AMRI. This laboratory was combined with the Plant Hormone and Regulators Laboratory, PPHI, in June 1981, to form what is now the Plant Hormone Laboratory. He has served as Acting Laboratory Chief since the death of Dr. Morris Lieberman, January 18, 1982. Dr. Anderson's current research interests are concerned with biochemistry of seed aging, pathways of ethylene synthesis, and regulation of fruit ripening and senescence.

USDA 36th ANNUAL HONOR AWARDS CEREMONY (Held May 19, 1982)

Superior Service Awards: (Scientific Research)

James L. Hilton, Chairman, Agricultural Environmental Quality Institute. (Creative leadership in the development of weed science and agricultural chemicals technology that significantly improved agricultural productivity and lowered the cost of American food and fiber.)

Thomas J. Sexton, Chief, Avian Physiology Laboratory, ASI. (Development of successful procedures for preserving avian semen used in artificial insemination which accelerated genetic poultry improvement, reduced hatching egg production cost, and aided preservation of endangered wildlife.)

Superior Group Achievement Award: (Scientific Research)

Insect Pheromone Research Team--Jack R. Plimmer, Barbara A. Leonhardt, May N. Inscoe, Meyer Schwarz, Jerome A. Klun, and E. David DeVilbiss--ARS; Beltsville, Maryland. (Outstanding research in the utilization of potent sex attractants (pheromones) to monitor and control important agricultural insect pests.)

Director's Awards:

Dean E. Cress, Cell Culture and Nitrogen Fixation Laboratory, PPHI. (Outstanding research effort in the application of recombinant DNA technology toward the development of a diagnostic assay for potato spindle tuber viroid.)

Director's Awards: (Continued)

Michael D. Ruff, Chief, Poultry Parasitic Diseases Laboratory, API.
(Providing outstanding leadership in redirecting and reinvigorating the research program of the Poultry Parasitic Diseases Laboratory.)

Gideon W. Schaeffer, Chief, Cell Culture and Nitrogen Fixation Laboratory, PPHI.
(Development and use of innovative selection and anther culture techniques for the predictable recovery of plants.)

Raymon E. Webb, Chief, Vegetable Laboratory, HSI. (Accomplishment in guiding key elements of the Department's vegetable research to exceptional high levels of prestige and leadership in modern olericultural affairs.)

Visiting Scientists:

Yoshihisa Kohno, Bio-Environment Laboratory, Central Research Institute of Electric Power Industry in Japan, arrived at Beltsville, April 22, to begin an 18-month tour of duty as a Foreign Research Associate. Mr. Kohno will be working with Charles D. Foy and associates in the Plant Stress Laboratory, PPHI, on the physiology of differential metal toxicities in plants.

Joseph Mack joined the Tobacco Laboratory in early June as a visiting scientist. Dr. Mack received his Ph. D. in Sidney, Australia, and has been associated with the University of California at Davis, the University of British Columbia, and Yale University in recent years. He is planning to work with James A. Saunders as a collaborating scientist for a period of 2 to 3 months. Dr. Mack's expertise lies in the area of organic chemistry and enzyme kinetics. His talents will be combined with the Tobacco Lab's experience in secondary natural products to produce an affinity chromatography column for the enzyme phenylalanine ammonia lyase. This enzyme is a key step in the synthesis of many compounds in tobacco which are suspected to be involved in health-related problems.

Surinder K. Tikoo, a tomato breeder with the Indian Institute of Horticultural Research, Bangalore, India, is visiting the Vegetable Laboratory, HSI, for 3 months as an FAO Fellow. Dr. Tikoo is receiving training from Allan K. Stoner and Thomas H. Barksdale in tomato breeding and pathology. In addition, he is working with Donald T. Krizek and Charles D. Foy, Plant Stress Laboratory, PPHI, on experiments involving drought stress and aluminum toxicity, and with Autar K. Mattoo, visiting scientist from Israel, Plant Hormone Laboratory, PPHI, on an experiment relating plant proteins to disease resistance.

BELTSVILLE SYMPOSIUM VII

(Submitted by Lowell D. Owens, Chairman)

The seventh Beltsville Symposium, "Genetic Engineering: Applications to Agriculture," held May 16-19, set new records for this series in participation. A total of 630 persons attended from 19 countries and 42 States. About three-fourths of the registrants were affiliated with either university (241) or Government (220) institutions, and about one-fourth (169) with private industry.

The 22 major lectures presented dealt with knowledge gained in the past few years which promises to provide powerful new strategies for the genetic or phenotypic improvement of plants, microbes and animals important to agriculture. Included were lectures on plant genome characterization, isolation and cloning of agriculturally important genes, genetic modification of plants through the transfer of DNA or organelles, derivation of new or altered plants through protoplast fusion or mutant cell selection, anther culture, rapid clonal propagation of plants via tissue culture, and the production of monoclonal antibodies and other biochemicals for agricultural uses. In addition to these lectures, the 46 poster presentations dealt with a variety of molecular biology and tissue culture topics.

While the Symposium identified instances in which the new biotechnologies are being commercially exploited or are directly providing plant breeders with novel germplasm, it also made clear that the core genetic tool, recombinant DNA technology, is being used primarily in the discovery of new knowledge. Specifically, it is enabling investigations of how genes of higher organisms are structured and expressed and how their expression is controlled during the developmental stages of the organism. It is this knowledge that together with the identification of specific gene products will form the basis for the truly remarkable advances of the future in the genetic modification of life forms important to agriculture.

Donald D. Brown, Carnegie Institution of Washington, presented the keynote address, "How Modern Methods Are Solving Biological Problems." He pointed to the developing critical shortage of trained personnel due to rapid expansion of the private sector into molecular biology. The situation is exacerbated by continued underfunding of the USDA Competitive Research Grants Program which provides training in this area of research at the graduate and postgraduate levels. He proposed large increases in funding of this program by USDA, and also the establishment of a similar grants program financed entirely by the private industries who would benefit from this research in the long term.

The Symposium Organizing Committee expresses appreciation to BARC scientists and staff who, in many different and generous ways, helped to make our visitors feel appreciated and the entire Symposium a great success.

BARC SEMINAR

As a part of the Beltsville Seminar program arranged by OPEDA, the Honorable Steny Hoyer, Congressman to the U.S. House of Representatives from the Fifth District in Maryland and a member of the Post Office and Civil Service Committee and the Committee on Banking, Finance, and Urban Affairs, spoke to the Beltsville employees on Wednesday, April 28. He discussed the issues before Congress which affect the Federal civil servant. Congressman Hoyer addressed issues such as the COLA for Federal retirees; comparability; flexitime; and other employee benefits. He responded to questions from the floor concerning A-76 (contracting out); utilization of land at Beltsville; image of the Federal worker; and RIF's.

AGRICULTURAL HANDBOOK

"Selected Weeds of the United States," Agricultural Handbook No. 366, published in 1970, contains over 200 drawings of weeds prepared from herbarium specimens by Regina O. Hughes, USDA artist. The Agricultural Environmental Quality Institute has a limited number of copies for distribution to interested BARC personnel. To obtain a copy, contact Gladys R. Bolton, on X43029.

PUBLICATION OF NEW JOURNAL

A new journal, "Advances in Strawberry Production," has been published by the North American Strawberry Growers' Association. It is a unique journal because, although it is entirely financed by growers, the grower group insisted that this should be a refereed journal with scientific, not "grower type," articles. Scientists of the Fruit Laboratory, HSI, strongly encouraged the publication of this journal and contributed to the first volume.

SAFETY

Recently, two fires were discovered and extinguished in two of the larger buildings at BARC. In Building 005, BARC-West, an overheated coffeemaker was removed after having burned a hole in a tabletop. In Building 200, BARC-East, the residue of heat in a hotplate in a chemical hood ignited two cartons of research samples. The hood was scorched; the samples and the hotplate were destroyed. In each case, the fire alarm system was activated by smoke or heat sensors; magnet-held fire doors automatically were released to close, and persons in the building were warned of the possibility of a fire. Both fires were located and quickly extinguished.

It is gratifying to know that the alarm systems operated exactly as intended. The alarms provided "early warning" so that fire loss and damage could be minimized. Fortunately, in both instances, Security personnel were making their scheduled tours when the fires occurred and were able to locate the fires. Sometime in the future the fire alarm systems now being installed in some 40 buildings, will be linked to a central watch station, thence to the Prince George's Fire Control and Information Center providing a warning system connected directly to the local Fire Departments.

Several false alarms have occurred in the last few months, and some may occur again as calibration of the system is continued in the next month. Any alarm should be taken seriously with immediate action to seek a safe area. However, if it is determined that a malfunction has occurred, then the matter should be reported to the Engineering and Planning Branch, X42434.

OTHER AWARDS AND HONORS

Cash Awards:

Fleming, Jane W., BARC Administrative Office. (Outstanding performance of duties as intermittent clerk-typist to the Reproduction Laboratory, ASI.)

Malakatis, George M., Ruminant Parasitic Diseases Laboratory, API. (Outstanding performance in furthering the objectives of in vitro cultivation of parasitic nematodes of cattle, sheep, and swine; including the teaching of techniques and skills for cultivation to visiting international scientists.)

Morgan, Bonnie E., Nonruminant Animal Nutrition Laboratory, ASI. (Efficiently processing and organizing swine breeding research data for use in statistical analyses and annual reports.)

Nye, Walter J., Animal Operations Unit. (Sustained work performance in the care, feeding, and management of chickens assigned to studies in physiology of reproduction.)

Wildermuth, Shirley A., Animal Operations Unit. (Sustained work performance in the care, feeding, and management of chickens assigned to studies in physiology of reproduction.)

Quality Increases:

Woltz, Sharon A., Ruminant Parasitic Diseases Laboratory, API. (Excellence in performance and production as secretary to the Ruminant Parasitic Diseases Laboratory.)

International Honors Award (OICD)

A. Morgan Golden, Nematology Laboratory, PPI, was selected as a recipient of the 1982 International Honors Award by the Office of International Cooperation and Development (OICD). This award is presented annually to an individual from the private sector, university community, or the Federal government who has made significant contributions to the development, conduct, or evaluation of programs directed by the OICD. Dr. Golden was cited for work as cooperating scientist on PL-480 studies of cereal and fruit nematodes in Pakistan.

EMPLOYEE ACTIVITIES

Suzanne W. T. Batra, Beneficial Insect Introduction Laboratory, IIBIII, appeared on "Up On the Farm," a Channel 22 program, May 10 and 11. The program discussed Dr. Batra's work with the Japanese hornfaced bee, Osmia cornifrons, which Dr. Batra has imported and is studying for improved pollination of apple and other spring fruit crops in the U.S. This research is part of--and supported by--the NER Small Farms Program.

Robert F. W. Schroder, Beneficial Insect Introduction Laboratory, IIBIII, appeared in two 3-minute segments on USDA's "Down to Earth" program on May 4 and 5 (Channel 4). Dr. Schroder discussed his research on an introduced parasitic mite for control of Mexican bean beetle, and on an introduced wasp for control of the Colorado potato beetle. This research is part of--and supported by--the NER Small Farms Program.

Akey C. F. Hung, Beneficial Insect Introduction Laboratory, IIBIII, presented two papers entitled "Isozyme analyses of *Trichogramma pretiosum* populations in the U.S.," and "Petal-like structure in *Trichogramma*," April 20-23 in Antibes, France, at the First International Trichogramma Symposium. Trichogramma are minute parasitic wasps widely used in biological control of agricultural and forest insect pests. His first paper is a biosystematic investigation using 12 enzyme systems. The second paper is the result of a scanning electron microscope study of a unique structure which has not been reported in any other group of insects. The symposium was attended by entomologists from 29 countries. Dr. Hung was elected to the Systematics and Genetics Section of the committee which will organize a symposium on Trichogramma at the International Congress of Entomology (Hamburg-1984), and the Second International Trichogramma Symposium (People's Republic of China-1986).

VISITORS

England--On May 14, Dr. R. Ross, Director of Research, Country Kitchens, England, discussed mushroom research with James P. San Antonio and Kenneth L. Deahl, Vegetable Laboratory (VL), HSI, and visited the cultivated mushroom laboratories and growing facilities of the VL.

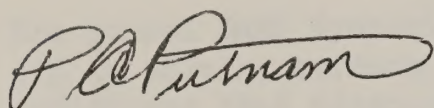
People's Republic of China--Dr. Co Jin Kian, Department of Biology, Division of Biochemistry, and Dr. Jia-rui Fu, Department of Biology, Division of Plant Physiology, Sun Yat-sen University, visited the Seed Research Laboratory, PGGI, on May 5. The visitors met with G. R. Chandra, Chief, Lila Vodkin, Martin M. Kulik, Robert W. Yaklich, and Lowell W. Woodstock, to discuss research progress on seed vigor and seedborne diseases.

People's Republic of China--A delegation from the Chinese Academy of Agricultural Sciences visited BARC on May 19. The five-member delegation began their U.S. visit with a stop in San Francisco and will end in Washington, D.C. They specifically requested a stop at Beltsville. They were greeted by Essex E. Finney, Jr., Assistant Director, followed by brief visits with the Fruit Laboratory, HSI (M. Faust); Instrumentation Research Laboratory, HSI (David R. Massie); and Cell Culture and Nitrogen Fixation Laboratory, PPHI (Francis T. Sharpe). The 4-week U.S. visit was hosted by the Agricultural Development Council, Inc., New York City.

Thailand--Dr. R. Syamananda, Deputy Director General; Mr. A. Auetragul, FAO Consultant; and Mrs. P. Phuntharee, Head of Spawnmaking Laboratory, Department of Agriculture, Bangkok, consulted with James P. San Antonio on mushroom research, and visited the cultivated mushroom laboratories and mushroom growing facilities of the Vegetable Laboratory, HSI, on May 20.

ERS Staff Visit:

Dr. John Lee, Administrator, Economic Research Service, together with members of his staff visited BARC on April 26. After a conference with T. J. Army, Deputy Administrator, NPS, he was greeted by Paul A. Putnam who accompanied Dr. Lee on a tour which included presentations by Gideon W. Schaffer, Cell Culture and Nitrogen Fixation Laboratory, PPHI; James F. Parr, Jr., Biological Waste Management and Organic Resources Laboratory, AEQI; and Anthony W. Kotula, Meat Science Laboratory, ASI. Leila Moran, National Agricultural Library, arranged a tour of the Library following the tour of BARC.



P. A. PUTNAM, Director
Beltsville Agricultural Research Center



NOTES FROM THE DIRECTOR

No. 136

July 29, 1982

BARC Symposium VIII

The eighth annual Beltsville Symposium in Agricultural Research will focus on "Agricultural Chemicals of the Future." This Symposium is scheduled for May 16-19, 1983. Dr. James L. Hilton, AEQI, has agreed to serve as Chairman.

The annual BARC Symposia serve as a forum for examining research that may aid in solving current and emerging agricultural problems. The 1983 Symposium recognizes that advances in chemistry play an essential role in our modern system for producing, protecting, and marketing food and fiber. A list of outstanding speakers has been assembled. The Symposium promises, therefore, to bring together some of the leading scientists in the Nation who are involved in both basic research and the development of future chemical technology for the benefit of farmers and consumers.

PERSONNEL

New Employee:

Robert J. Griesbach recently accepted a permanent research scientist position in the Florist and Nursery Crops Laboratory, HSI, following a postdoctoral assignment. Dr. Griesbach is a geneticist conducting research on chromosome mediated transformation, and is investigating the introduction of chromosomes into protoplasts as a method of genetic modification. He obtained his Ph. D. under the direction of Dr. Peter Carlson, Michigan State University. In addition to a background in cell culture, genetics, and physiology, Dr. Griesbach has a background in ornamental plant breeding. His current assignment includes research on the genetic enhancement of selected ornamental species by genetic manipulation in cell culture and breeding.

Visiting Scientists in the Florist & Nursery Crops Laboratory (F&NCL), HSI:

Dr. John Hammond has joined the F&NCL on a 3-year postdoctoral assignment. He will be working in cooperation with Roger H. Lawson, Laboratory Chief, on a project entitled: "Detection and Control of Viral Diseases in Gladiolus, Bulbous Iris, and Lilies" funded by a BARD grant. Dr. Hammond graduated from the University of East Anglia, and conducted his research at the John Innes Institute, Norwich, England. For the past 20 months he has been in the laboratory of Dr. Richard Lister, Purdue, where he worked on purification and characterization of strains of barley yellow dwarf virus.

Dr. Hiram Larew has been appointed to a 1-year postdoctoral fellowship--funded by the Administrator--in the F&NCL. He received his Ph. D. from the Department of Entomology, Oregon State University, where his research was on anatomy and

physiology of insect-associated plant galls. Dr. Larew is currently conducting research on the biology and control of Liriomyza, the serpentine leafminer, which is a major insect problem and has caused significant economic losses in cyclic epidemics during the past several years in both ornamental and vegetable crops. He is investigating the anatomical and physiological basis of host resistance.

Visiting Scientists in the Fruit Laboratory (FL), HSI:

Dr. O. Jones has joined the FL for 6 months of sabbatical leave. He is a senior scientist at the East Malling Fruit Research Station, England, specializing in rootstocks and fruit tissue culture. He will be working on the use of tissue culture to study the mechanism of dwarfing in fruit trees.

Mr. Dayuan Wang joined the FL for 1 year. He is the head of the Tissue Culture Laboratory of the Institute of Citrus, Chinese Academy of Agricultural Sciences, Chunking, People's Republic of China. He is working on somatic embryogenesis of strawberries and other fruit crops.

Dr. S. Zagaja joined the FL for 3 months. He is the assistant director of the Research Institute of Pomology, Skierniewice, Poland. He is a breeder and will study the population genetics of dwarf apples located in the FL.

Dr. R. Awasthi, an FAO Fellow, will spend 2 months in the FL studying zinc uptake and translocation in apple trees. He is a plant nutritionist and the director of the Fruit Research Station, Mashobra HP, India.

Mr. Hou-ji Zhou is nearing completion of his 1-year study involving iron nutrition of apple trees. He is a senior scientist and the head of the Department of Soils and Fertilizers at the Institute of Pomology, Chinese Academy of Agricultural Sciences, Xingcheng, Liaoning Province, People's Republic of China.

Mr. V. Magluilo is here for 3 months to study selection techniques in strawberries. He is a farm advisor for a fruit grower cooperative in the Naples area in Italy. The cooperative has sent him here to study the newest techniques and varieties in strawberry production.

Dr. Giora Zauberman is nearing completion of a 1-year study involving the effect of calcium on fruit quality, ethylene production and ripening of the fruit. Dr. Zauberman is a senior scientist in postharvest physiology at the Volcani Institute, Bet Dagan, Israel.

Mr. Wen-yong Zhu is studying rootstock effect on nutrient content of apples for a period of 1 year in the FL. He is a research associate in the Research Institute of Pomology, Taiku, Shanxi Province, People's Republic of China.

BARC COMMITTEE CHANGE

Crawford L. Avery replaces Lonnie Neal as Animal Operations representative on the BARC EEO Committee.

AWARDS AND HONORS

Cash Awards:

Haines, Herbert W., Ruminant Parasitic Diseases Laboratory, API. (Recognition and expeditious and safe resolution of a potentially hazardous laboratory situation.)

Kelley, Emory O., Plant Introduction Station, Germplasm Resources Laboratory, PGGI. (Performing major improvements to Plant Introduction Station buildings and grounds.)

Messineo, Frank A., Engineering and Planning Branch (E&PB), Division of Operations. (Sustained superior performance of duties assigned in the Work Management Section, E&PB.)

Westfall, W. Marie, BARC Administrative Office. (Consistently performing the duties of an Institute Office Secretary (IIBIII) while maintaining a high level of performance.)

Quality Increases:

Baum, Philip, Vegetable Laboratory, HSI. (Sustained, outstanding technical support of the Northeastern Region Potato Breeding Program.)

Risdon, Amelia H., Plant Hormone Laboratory, PPHI. (Continuous high quality secretarial support to the Plant Hormone Laboratory.)

VISITORS

Congressional Visit:

Congressman and Mrs. Lee Hamilton, Indiana, and several family members, visited BARC on Wednesday, June 30. They were greeted by A. A. Piringer, Acting Director, followed by a tour of the Center by Michael Combs, Visitor Unit. Congressman Hamilton was extremely interested in BARC from an organizational point of view as well as with the many facets of agricultural research being explored.

Fruit Virologists from Europe:

Fifteen fruit virologists from Poland, Yugoslavia, Germany, the Netherlands, Italy, Switzerland, Hungary, and France visited BARC and Glenn Dale on June 30. Their visit was part of a postmeeting tour of the XII International Fruit Virus Symposium held in British Columbia and Washington State. At BARC they discussed research with T. O. Diener, L. Owens, F. Hammerschlag, and R. Zimmerman. At Glenn Dale they toured the fruit virus indexing plots of H. Waterworth, and J. Foster (APHIS). Other stops on the East Coast tour were at Kearneysville, West Virginia, Biglerville, Pennsylvania, several commercial growers, nursery companies, and fruit processors.

VISITORS (Continued)

Egypt--Dr. Talaat Mohamed El Kobbia, Department of Plant Nutrition, Ain Shams University, Cairo, visited Donald T. Krizek and Charles D. Foy, Plant Stress Laboratory, PPHI, on July 7, to discuss mutual research on plant nutrition, and drought resistance.

Finland--On June 30, Professor Lauri Karenlampi, Chairman of the Ecological Laboratory, University of Kuopio, visited Howard E. Heggstad, Jesse H. Bennett, and Edward H. Lee, Plant Stress Laboratory, PPHI.

Israel--Dr. M. Bar-Hai, Cotton Production and Marketing Board of Israel, Tel Aviv, recently visited M. Jacobson, Chief, and V. E. Adler, Biologically Active Natural Products Laboratory, AEQI, to learn the practical use of insect feeding deterrents from native plants.

Korea--Dr. H. S. Uh, Lucky Central Research Institute, Chungnam, consulted with M. Jacobson, Chief, Biologically Active Natural Products Laboratory, AEQI, on the practical use of insect feeding deterrents from native plants.

People's Republic of China (PRC)--A delegation of scientists from PRC visited BARC on June 7 and 8 as the first stop on a month-long tour of the U.S. to study the production and use of the viral pathogens of insects in pest control. The delegation was welcomed to BARC by Essex E. Finney, Jr., and then met with the staff of the Insect Pathology Laboratory, PPI, to discuss current research on insect pathogens. During the remainder of the U.S. tour the delegation will visit USDA laboratories at Otis AFB, Massachusetts; Tifton, Georgia; Columbia, Missouri; and Fresno, California.

Tunisia--On June 29, Drs. A. Popa and A. Sakley, Bee Research Laboratory, Office for Livestock and Pastures, Tunis, visited with H. Shimanuki, Chief, Bioenvironmental Bee Laboratory, PPI. Dr. Popa was here to consult on the PL-480 project on chalkbrood disease and Varroa jacobsoni. Dr. Sakley spent 4 days learning the bee disease diagnostic methods employed by the laboratory.

Yugoslavia--Dr. Sreten Stamenkovic, Faculty of Agriculture, University of Novi Sad, Novi Sad, visited members of the Field Crops and Germplasm Resources Laboratories, PGGI, June 3 and 4. Dr. Stamenkovic, an entomologist in the Field and Vegetable Crops Institute at Novi Sad, is conducting research on plant resistance to wheat insect pests, particularly the Senn Pest, Eurygaster austriaca, and the fly, Opomyza florum. At Beltsville he discussed entomological research on alfalfa, soybeans, and forage and turf grasses with Thomas Elden and Roger Ratcliffe; alfalfa breeding research and selection for disease resistance with James Elgin and Stanley Ostazeski; and small grains breeding research with Stephen Baenziger and John Moseman. He also reviewed the Small Grains Collection and discussed plant introduction programs and procedures with Wayne Porter and George White.

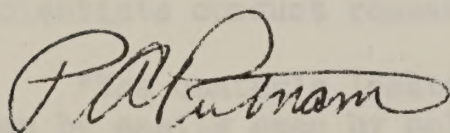
VISITOR UNIT QUARTERLY TABULATION:

During the quarter ending June 30, 1982, the Visitor Unit reports the following information:

No. of Visitors	High Level/Professional Groups/Individuals	Students	Other	Countries Represented
6,639	776	1,763	4,100	29

SURPLUS EQUIPMENT:

Item	Condition	Contact	Ext.
Grinding Mill (Wiley), w/motor, belt-driven, mounted on wheeled table, circa 1938	Needs new belt, sharpening, and blade adjustment.	<u>M. Jacobson</u> <u>C. Harding</u>	42025 42139
Chromatocab (Warner), ARS 172856	Good	<u>P. Allen</u>	42510
Microscope, Electron (AEI), EM 6B (S305449)	Good, but needs new water chiller unit.	<u>L. Spriggs</u>	42427
Incubator, Poultry (2) (Jamesway), (S6939 & S6948)	Usable, but need some repairs.	<u>G. Wilkins</u>	42300
Microtone Cryostat (International), (S62956)	Good	<u>G. Wilkins</u>	42300



P. A. PUTNAM, Director
Beltsville Agricultural Research Center



United States
Department of
Agriculture

Agricultural
Research
Service

Northeastern Region
Beltsville Agricultural
Research Center

Beltsville, Maryland
20705

NOTES FROM THE DIRECTOR

No. 137

August 31, 1982

NATIONAL ADVISORY BOARD BACKS BELTSVILLE

The National Agricultural Research and Extension Users Advisory Board (UAB) has recommended that BARC be "reestablished as a high-powered agricultural research center...(and) serve as the model for other public and private research centers in this country and abroad."

This recommendation is made in a recent report to the Secretary of Agriculture dated July 1982. The UAB is a statutory committee established by Congress in 1977. The board's 25 members represent the multiple interests of all users of the national agricultural science and education system. They advise both the Executive and Legislative Branches of Government. The full text of their recommendation on Beltsville follows:

"Returning the Beltsville Agricultural Research Center to Preeminence

"The Agricultural Research Service (ARS), as a federally funded and managed organization, is responsible for making important contributions to support the agricultural and food sector of the entire Nation. To do this, ARS must serve as the fountainhead for sustained intellectual leadership in agricultural research. Its staff must continue to be leaders in the world's scientific community.

"ARS created the country's--if not the world's--premiere central research facility for agriculture at the Beltsville (Md.) Agricultural Research Center (BARC). In this complex of fields, barns, laboratories, and computers, scientists conduct research involving broad domestic and international interests.

"The center's location next to the Nation's Capital is ideal. The work can be easily seen by political and business leaders. The center's programs can be conducted in cooperation with other Federal research and regulatory agencies. And its international projects are well served by the center's proximity to embassies of foreign nations.

"Today, the preeminence of the Beltsville center is very much in doubt. We believe the center must be reestablished as a high-powered agricultural research center working in the forefront of agricultural production and natural resource problems. Its programs can and should serve as the model for other public and private research centers in this country and abroad."

Knutson to Lead Entomologists

Lloyd Knutson, Director, Biosystematics and Beneficial Insects Institute (BBII), has been elected President of the Entomological Society of America (ESA) for 1988. With 7,300 U.S. and 950 foreign members, ESA is the largest and most influential entomological society in the world. The society represents all scientific aspects of entomology, publishes five journal series, and with the associated American Registry of Professional Entomologists (for which Knutson served as President in 1985-86), it also represents professional/consultant aspects. Three other ARS insect systematists have served as President of the ESA since it merged with the American Association of Economic Entomologists in 1953; P. W. Oman (1959), C. W. Sabrosky (1969), and R. I. Sailer (1977). All three were currently or previously research entomologists in the Systematic Entomology Laboratory.

Twelfth Annual Symposium in Agricultural Research

Theron S. Rumsey and George L. Steffens, Co-chairs of Beltsville's Symposium XII, are moving ahead with plans for the program scheduled for May 3-7, 1987. The theme this year is "Biomechanisms Regulating Growth and Development." Thirty-one outstanding speakers have been invited to discuss the most recent developments in the fields of biochemistry and physiology as they relate to the growth and development of animals, plants, and insects.

A special program is scheduled for the evening of May 6. Terry B. Kinney, Jr., Administrator of ARS, will announce the most recent selections chosen to enter the ARS Scientific Hall of Fame. E. F. Knipling, an ARS pioneer in entomology, was the honoree last year. The Hall of Fame Ceremony this year will include a dinner and reception at Martin's Crosswinds in Greenbelt. Please plan to join your colleagues to make this a successful and memorable occasion.

Behavioral Expert Joins Insect Chemical Ecology Laboratory

Ashok K. Raina was recently hired by ARS as a Research Entomologist in the Insect Chemical Ecology Laboratory, AEQI. Dr. Raina will investigate the mechanisms that control the production and release of behavior modifying chemicals such as pheromones in insects.

Dr. Raina received his Ph.D. in 1974 from North Dakota State University. His research thesis on ecophysiological and genetic aspects of diapause in the pink bollworm was conducted at the ARS Metabolism and Radiation Research Laboratory. His entomological career started in 1962 with the Commonwealth Institute of Biological Control in India. Since 1981, Dr. Raina has worked as a Senior Research Associate with the Department of Entomology, University of Maryland.



NOTES FROM THE DIRECTOR

No. 138

September 30, 1982

NATIONAL WHEAT RESEARCH CONFERENCE - October 26-28, 1982

The National Wheat Research Conference will be presented at BARC by the National Association of Wheat Growers Foundation, in cooperation with ARS and the National Wheat Improvement Committee. Participants include leading ARS, agricultural experiment station, and industry research scientists involved with research on wheat. Dr. N. E. Borlaug, recipient of the 1970 Nobel Peace Prize, and ARS Administrator Dr. T. B. Kinney, Jr., are featured speakers on October 26. Dr. Borlaug and Senator Mark Andrews (R-ND), will speak at the banquet on the evening of October 27.

The Conference is open, but a five dollar registration fee will be required for anyone at BARC attending a session(s) of the Conference. One can attend any or all sessions (not including meal functions) for that amount. The fee is necessary to cover incidental expenses incurred in putting on such a meeting. Non-BARC attendees will pay a higher registration fee. Copies of the program and forms for registration are available by calling (202)547-7800, or (301)344-3927.

AMERICAN CHEMICAL SOCIETY (ACS) HONORS KEARNEY

Philip C. Kearney, Chief of the Pesticide Degradation Laboratory, AEQI, received the Burdick and Jackson International Award for Research in Pesticide Chemistry during the annual meeting of the ACS in Kansas City, September 12-17. This is a major award presented annually by the Pesticide Chemistry Division of ACS. Dr. Kearney is an international authority on the chemistry of pesticides in the environment. His major interests have been in studying how soil microorganisms degrade pesticides, and identifying the breakdown products and the responsible enzymes. The chairman of the awards committee cited Kearney for his "outstanding career in the field of the breakdown of pesticides--particularly in the soil."

POULTRY SCIENCE ASSOCIATION (PSA) HONORS SEXTON

Thomas J. Sexton, Chief, Avian Physiology Laboratory, ASI, was recently awarded the 1982 Poultry Science Association Research Award. This award is given to a member of the PSA who, in the preceding calendar year--as sole or senior author--published outstanding research in the Journal of Poultry Science. Dr. Sexton received this award for the following two published papers: "Effect of prefreeze treatment on the fertilizing capacity of frozen chicken semen," and "Development of a commercial method for freezing turkey semen. I. Effect of prefreeze techniques on the fertility of processed unfrozen and frozen turkey semen."

ADVANCES IN PESTICIDE CHEMISTRY

Agricultural losses due to pests are about \$30 billion annually. Improved methods of pest control, therefore, are vital to American agriculture. About 8 years and \$15 to \$20 million is required for chemical companies to develop, manufacture, register, and market one pesticide. Only one of 12,000 compounds in 1977 successfully advanced from the research laboratory to become a registered pesticide. Jack Plimmer, Chief, Organic Chemical Synthesis Laboratory, AEQI, projects that by 1997 only one of 80,000 compounds tested will become a commercial product. Pesticide scientists, therefore, face a formidable task in research to develop new methods for controlling agricultural pests.

I am pleased to note that BARC scientists are in the forefront of research to develop new technology to control pests and reduce losses during the production, storage, and marketing of agricultural products. A recent series of reports in industrial and chemical trade journals have highlighted renewed interest in a pest control chemical (MV-678) initially synthesized by Meyer Schwarz, AEQI, in 1974. Stauffer Chemical Company has built upon the research of Dr. Schwarz to develop a new product for the large-scale control of the fire ant, a major pest in the southern U.S. The active ingredient in this pesticide is a synthetic analog of the insect juvenile hormones that control larval development. Stauffer has been interested in this compound from the outset but did not gear up for commercial development until patent laws were revised to allow exclusive commercial licenses for Federal patents.

I am also pleased to report that recent work on insect antifeedants, under Martin Jacobson, Chief, Biologically Active Natural Products Laboratory, AEQI, has also attracted industry interest. An exclusive license for the manufacture, use, and sale of a boll weevil antifeedant from tung oil under Federal Patent 4,293,567 has been granted to Bio-Systems Research, Inc. The antifeedant, methyl α -eleostearate, has been shown to be completely nontoxic to warm-blooded animals and fish, nonmutagenic, and nonphytotoxic. It is presently undergoing extensive field tests in areas where the boll weevil is a serious pest of cotton.

BASIC TAXONOMY IS INVALUABLE

This country does not need another fly. Everyone agrees, including research entomologist Raymond J. Gagne of the Systematic Entomology Laboratory, IIBIII, who recently helped to determine the potential establishment of a new fly species in the U.S. The common housefly, Musca domestica L., and a serious pest of cattle--the face fly M. autumnalis--were both accidentally introduced into North America from Europe. In August, Gagne routinely examined a "housefly" that had been intercepted at McGuire Air Force Base by an APHIS-PPQ port inspector.

As a member of our proficient USDA taxonomic group, Gagne has previously provided prompt and authoritative identification of thousands of such insect intruders. Gagne identified the fly hitchhiker as Musca vitripennis Meigen, an Old World pest not found on this continent and a vector of a serious disease of cattle.

Because the establishment of another Musca species in North America would be very serious, APHIS-Veterinary Services called an emergency meeting in Hyattsville on September 3. An investigation was conducted by a special 15-member team including Gagne and L. Knutson, Chairman, IIBIII; D. K. Hayes, Chief, and Richard W. Miller and Edward T. Schmidtman, Livestock Insects Laboratory (LIL), AEQI; and Ralph A. Bram, ARS National Program Staff. Gagne, Schmidtman, and N. O. Morgan, LIL, then conducted a survey of 11 locations--mostly dairy farms near McGuire AFB--using pyramidal fly traps invented by Lawrence G. Pickens, LIL, and other devices. The scientists collected and identified 50-60,000 flies. No M. vitripennis were found.

These exercises underscore the importance of disinfecting aircraft, both civilian and military. There are probably 10,000 foreign species of insects that are potential pests in the U.S. awaiting transportation to our shores.

PERSONNEL

New Employee:

Sueo Nakahara was recently selected to fill the Research Entomologist position for whiteflies and thrips in the Systematic Entomology Laboratory (SEL), IIBIII. Mr. Nakahara began his career in 1957 as a Plant Quarantine Inspector in the former Plant Quarantine Division of ARS. During the ensuing 25 years he progressed to the position as a specialist and authority on the identification of scale insects, thrips, and whiteflies intercepted in plant quarantine by APHIS-PPQ. He will be responsible for research and taxonomic services in the whiteflies and thrips, major pests in crops, nurseries, and gardens. "Steve" is no stranger to the SEL. For the past 13 years his office has been located in SEL facilities where he made use of the National Insect Collection in his identifications for APHIS-PPQ. He has had a close association with SEL staff, being involved in several joint research projects and in teaching a workshop on scale insects.

Visiting Scientists in the Soilborne Diseases Laboratory (SDL), PPI:

Dr. Talma Katan has joined the SDL on a 1-year professional assignment. She will be working in cooperation with George C. Papavizas, Laboratory Chief, on a project entitled: "Biological Control of Selected Soilborne Plant Pathogens with Wild Strains of Fungal Antagonists and Induced Biotypes of Enhanced Biocontrol Ability." Dr. Katan obtained her Ph. D. degree from the Weizmann Institute of Israel, and is a permanent employee of the Ministry of Agriculture, Bet Dagan.

Dr. Elizabeth Sutherland has been appointed to a 1-year associateship position--funded by the Administrator. She will be working with Jack A. Lewis and George C. Papavizas on a project entitled: "Integration of Innovative Biological and Chemical Methods to Control Cotton Seedling Diseases." She received her Ph. D. degree from the Department of Botany and Plant Pathology, Michigan State University, where she worked on biological control of Phytophthora under the direction of

John Lockwood. For the past 11 months she has been in the SDL as a postdoctoral fellow working on hyperparasites that affect survival of oospores of Phytophthora capsici, the pepper crown rot and blight pathogen.

Ms. Jean Beagle has recently joined the SDL on a 1-year assignment. She will be working with Dr. Papavizas on a project entitled: "Surveying Potential Biocontrol Agents for Soilborne Disease Control." She received her M.S. degree from the Department of Botany and Plant Pathology, University of Maryland, where she worked with Jane F. Rissler on interactions of Phytophthora megasperma f. sp. glycinea and Rhizobium on soybeans.

NEW BARC COMMITTEE

Russell L. Steere, Chief, Plant Virology Laboratory, PPI, has been named chairperson for the Major Scientific Equipment Committee which was established September 1, 1982. Members of the committee represent the eight Institutes at Beltsville, as follows: Kenneth R. Hill (AEQI); Harry D. Danforth (API); Lawrence A. Johnson (ASI); Roger H. Lawson (HSI); Akey C. F. Hung (IIBIII); Lila O. Vodkin (PGGI); William T. Wergin (PPHI); and Jean R. Adams (PPI). This committee has been established to replace the BARC Electron Microscopy Committee with the additional charge to review and recommend to the Director the action to be taken on requests for purchase of new or additional major pieces of scientific equipment (over \$50,000).

EMPLOYEE ACTIVITIES

J. Ralph Lichtenfels, Head, Parasite Classification and Distribution Unit, API, has been elected to a 4-year term as Council Member-at-Large for the American Society of Parasitologists. Ron Fayer, Chief, Ruminant Parasitic Diseases Laboratory, API, was elected to serve on the Nominating Committee.

J. Ralph Lichtenfels, Chief, Parasite Classification and Distribution Unit, API, presented an invited paper, "Characteristics of Trichinella as Seen with Scanning Electron Microscopy," and a poster, "Synlophe and Species Determination of Nematodirus of Domestic Ruminants," at the V International Congress of Parasitology Institute, August 7-14, in Toronto, Canada.

Lekh R. Batra, Mycology Laboratory, PPI, was one of a select group of scientists to attend a major address by the Prime Minister of India, Mrs. Indira Gandhi, on the role of science and technology in our interdependent world. This lecture was sponsored on July 30 by the American Association for the Advancement of Science in Washington, D.C. The Prime Minister expressed the great need for cooperative scientific research in agriculture, as well as other areas, between India and the U.S. Following the lecture, Dr. Batra had an opportunity to briefly discuss agricultural research with Mrs. Gandhi.

OTHER AWARDS

Cash Awards:

Wilkins, Gary C., Poultry Parasitic Diseases Laboratory (PPDL), API.
(Exceptional support of research efforts of the PPDL by coordinating and ensuring the continued availability of experimental animals and organisms of the highest quality.)

Quality Increases:

Edwards, Shirley J., Parasite Classification and Distribution Unit, API.
(Outstanding leadership of the Index-Catalogue of Medical and Veterinary Zoology Project.)

Gilligan, Ellen V., Poultry Parasitic Diseases Laboratory (PPDL), API.
(Exceptional and innovative efforts in providing and improving clerical support that has contributed markedly to the ability of the PPDL to accomplish its mission.)

VISITORS

Brazil--A group of 25 visitors representing Brazilian research centers were at Beltsville on August 26. They were interested in methods we follow for starting, structuring, and funding research projects. Paul A. Putnam, Director, greeted the group before they met with members of the National Program Staff. Ben M. Kopacz, Assistant to the Administrator for International Activities joined Sheila Gillette, Timothy H. Blosser, Lee W. Briggles, Merrill C. Cleveland, and Robert C. Leffel in providing information on various agricultural research disciplines.

Colombia/Japan/Norway--Following the August meeting of the V International Congress of Parasitology, Toronto, Canada, several parasitologists visited the Parasite Classification and Distribution Unit, API. They were: Dr. W. Kozek (Cali, Colombia); Dr. C. Shoho (Takarazuka City, Japan); and Dr. Bjorn Berland (Bergen Norway).

District of Columbia--John Kermicle, Deputy Assistant to the Secretary for Public Liaison, accompanied by Mark Gammon and Kirby Hargis, two college seniors from Lubbock, Texas, who are participating in the Secretary of Agriculture Internship Program, visited BARC on September 21. They were given a briefing on BARC programs, functions of the National Program Staff, and a tour of six research laboratories at BARC.

England--Dr. Peter Coggan, International Pheromones, Ltd., London, recently visited Martin Jacobson, Chief, Biologically Active Natural Products Laboratory, AEQI, to discuss attractants for the Mediterranean fruit fly.

Federal Republic of Germany--In August, Dr. Heinz Rembold, Max-Planck Institute of Biochemistry, Martinsried, visited Martin Jacobson, Chief, and J. David Warthen, Jr., Biologically Active Natural Products Laboratory, AEQI, to discuss naturally occurring insect feeding deterrents. He also conferred with members of AEQI's Insect Reproduction; Livestock Insects; and Organic Chemical Synthesis Laboratories, and members of the Bioenvironmental Bee; and Insect Physiology Laboratories, PPI. Dr. Rembold presented a seminar entitled "Plant-Insect Interrelationships," while at BARC.

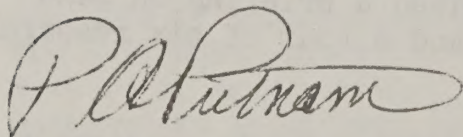
India--Professor R. K. Sharma, Department of Zoology, Rohickhand University, Bareilly, visited Martin Jacobson, Chief, Biologically Active Natural Products Laboratory, AEQI, on September 9, to discuss the isolation of insect antifeedants from native plants.

Japan--Mr. Kiyoki Kato, Deputy Director, Agricultural Insurance Management Division Ministry of Agriculture, Forestry, and Fisheries, Tokyo, visited BARC on September 16. He was greeted and briefed by Essex E. Finney, Jr., Acting Director, followed by a tour accompanied by Dr. Finney and Gordon Carpenter of the Visitor Unit. Mr. Kato also visited with Burton Y. Endo, Chairman, PPI, and Wilda Martinez, Dan Niffenegger, Gerald Carlson, Ben Kopacz, and other members of the National Program Staff.

Japan--Mr. Koji Honda, Deputy Director, Legal Affairs Division, Ministry of Agriculture, Forestry and Fisheries, Japan, visited with P. A. Putnam concerning agricultural research organization and government, and took a brief tour of Beltsville on September 29.

Switzerland--Dr. Rolf Immler, Head of Parasitology Research, Ciba-Geigy (Switzerland), accompanied by Dr. Don Allerman, Ciba-Geigy (Greensboro, North Carolina), were given an overview of the Animal Parasitology Institute's research programs by Harry Herlich, Chairman, on an August 20 visit.

The Biological Waste Management and Organic Resources Laboratory, AEQI, was visited by many interested individuals and groups over the past couple of months regarding research on composting; heavy metal interactions in soils, plants, and animals; and biomass production using biological wastes. Countries represented were: France, South Africa, Japan, Austria, Bermuda, Canada, Bulgaria, Australia, Finland, Korea, People's Republic of China, Egypt, and the Federal Republic of Germany.



P. A. PUTNAM, Director
Beltsville Agricultural Research Center



NOTES FROM THE DIRECTOR

No. 139

October 28, 1982

WHITE HOUSE PANEL REVIEWS BARC

The White House Science Council has undertaken a special review of laboratories owned by the Federal Government. The objectives of these reviews, according to Dr. George Keyworth, the Science Advisor to the President, are to define the appropriate roles and missions for Federal laboratories today, identify systematic impediments to satisfactory performance, and evaluate the unique strengths of the Federal laboratories.

A Federal Laboratory Review Panel, chaired by Mr. David Packard, Chairman of the Board, Hewlett-Packard Company, visited BARC on Friday, October 8. Other members of the panel were: Dr. John Bardeen, Department of Physics, University of Illinois; Dr. Donald Fredrickson, former Director of the National Institutes of Health and currently with the National Academy of Sciences; Professor Arthur Kerman, Department of Physics, Massachusetts Institute of Technology; Dr. Edward Teller, Hoover Institution; and Dr. Albert Wheelon, Vice President for Research, Hughes Aircraft Company.

The Review Panel received an introductory briefing by the Center Director from 9 to 10 a.m. The group spent the remainder of the day visiting a cross-section of research programs at the Center, including research on plant viruses and viroids, biological control of soilborne pathogens, mechanisms for insect control, chemistry of brassinolids, cell and tissue culture techniques, market quality instrumentation, energy metabolism in ruminants, and hybridoma techniques for control of coccidiosis in poultry. At the conclusion of the schedule for the day, the group indicated that they were favorably impressed with the quality and range of research programs at the Center.

GOALS FOR WHEAT RESEARCH HIGHLIGHTED

Two hundred top scientists, wheat growers, and agribusiness leaders gathered at Beltsville on October 26-29, to review national goals for wheat research in the 1980's. The 3-day conference was sponsored by the National Association of Wheat Growers Foundation, in cooperation with ARS and the National Wheat Improvement Committee.

Improved nutrition, increased productivity, reduced production costs, plus boosts in wheat harvests for a rapidly expanding world population were specific targets outlined by Mr. Glenn Moore, a Montana wheat grower who is President of the National Association of Wheat Growers Foundation. Dr. Byrd C. Curtis, Director of the wheat improvement program at the International Maize and Wheat Improvement Center in Mexico, cited a "yield gap" between the current genetic yield potential (290 bu/ac) of improved wheat varieties, and the average yields (about 38 bu/ac in the U.S.) obtained on farmers' fields.

Priorities for wheat research stretching into the 1990's were outlined by Dr. Terry B. Kinney, Jr., ARS Administrator. He indicated ARS scientists would be developing, collecting, preserving, and distributing wheat germplasm; improving genetic populations of wheat; developing new knowledge on basic plant growth and how a plant can resist or tolerate attacks of disease and insects; and developing basic principles of cultural practices so better farming systems can be introduced. Dr. Kinney said, "By increasing the production and quality of our grain, we are able to build exports that help offset costs of imports and also strengthen prices farmers receive. Agricultural research provides 35-50 percent annual returns on taxpayers' investments. In the future, research may return even more."

Dr. O. A. Vogel, ARS (retired), was honored at a luncheon on October 27 for his contributions to wheat improvement. Dr. Leland Briggie, NPS-ARS, and Mr. Jerry Rees, National Association of Wheat Growers Foundation, served as cochairmen of the Conference.

BIOCONTROL OF SOILBORNE PATHOGENS

Plant pathogens cause about \$12 billion in losses annually. George Papavizas, Chief of the Soilborne Diseases Laboratory, Plant Protection Institute (PPI), reports that biological control of plant pathogens is a rapidly advancing field with great potential. Many plant pathologists are now involved in biocontrol programs, and the advances which they have made may soon have a significant impact on activities associated with the registration of fungal and bacterial antagonists against plant diseases.

The Soilborne Diseases Laboratory, PPI, Beltsville, Maryland, now possesses three fungal antagonists with great biocontrol potential against specific plant pathogens. Trichoderma viride biotype R-1-R9 (patent pending) will be given to Microlife Technics of Sarasota, Florida, on an exclusive license to develop it as a biocontrol agent of chrysanthemum wilt caused by Fusarium oxysporum f. sp. dianthi in large commercial greenhouses. The second antagonist, Talaromyces flavus (Penicillium vermiculatum), will be developed by Rohm & Haas Company for control of Verticillium wilt of potatoes and other crops. The third antagonist, Sporidesmium sclerotivorum is in the hands of Upjohn Company, Biosystems Research, and Butler Mushroom Company for possible development as a biocontrol agent of Sclerotinia diseases of many economic crops. Several other potential biocontrol agents are being evaluated by scientists at Beltsville.

BARC CELEBRATES WORLD FOOD DAY

After a token attempt in 1981, BARC personnel took World Food Day seriously and came up with a first-class exhibit on October 16, 1982. Through the cooperation and support of the Institute personnel, Regional Information Office, Division of Operations, Animal Operations, and OPEDA, an exhibit was established along Route 1 that attracted somewhat over 1,000 visitors who learned how they are served by Agricultural Research. The refreshment stand and the musical background were successful additions to the occasion. With relatively moderate

improvements, the exhibit could have handled several thousands of visitors and, because of the contributions of the many Beltsville employees in 1982, we plan to repeat the occasion in 1983. Our goal will be to attract 5,000 to 10,000 visitors. With greater leadtime and a somewhat more intensive effort, I look forward to even greater success in 1983. I take this opportunity to thank all of you who contributed so enthusiastically this year, and look forward to seeing you again in 1983.

PERSONNEL

Visiting Scientists in the Pesticide Degradation Laboratory (PDL), AEQI:

Dr. Zev Gerstl, on sabbatical leave from the Institute of Soils and Water, Agricultural Research Organization, Bet Dagan, Israel, has begun a 1-year appointment with Charles D. Helling, Soil Scientist, PDL. His research will deal with adsorption and movement of toxic organic chemicals in soils.

Dr. Yaacov Katan began a 1-year visiting scientist appointment with Donald D. Kaufman, Soil Microbiologist, PDL. Dr. Katan is on leave from the Department of Plant Pathology of The Hebrew University of Jerusalem at Rehovot, Israel, and will be conducting research on microbial degradation of pesticides.

New Employees in the Animal Parasitology Institute (API):

Jitender P. Dubey, a veterinary parasitologist of world renown for his research on protozoan diseases of domestic animals, recently joined the staff of the Ruminant Parasitic Diseases Laboratory. Dr. Dubey's principal area of research will be pathophysiology of Toxoplasma and Sarcocystis related to meat-producing animals.

John V. Ernst has joined the Nonruminant Parasitic Diseases Laboratory. He had been with the ARS Regional Parasite Laboratory, Auburn, Alabama, and did his doctoral work at Utah State University. Dr. Ernst is a zoologist and will work on coccidian parasites of swine.

Shawn D. Conrad and Rodney T. Goodman are welcome additions to the animal caretaking staff of API.

Employee Activities:

Miklos Faust, Chief, Fruit Laboratory, HSI, has been elected to serve a 4-year term as president of the International Plant Nutrition Colloquium. He has been a member of the International Council of Plant Nutrition for several years. The next Colloquium will be held at Beltsville in 1986.

VISITORS

Canada--Marc Carbonneau, Ministry of Agriculture, Fisheries and Food, Quebec, visited Charles S. Helling, Pesticide Degradation Laboratory (PDL), AEQI, in August, regarding ground water pollution by pesticides. Visits were also arranged

with Ralph G. Nash, PDL; Melvin E. Getz, Analytical Chemistry Laboratory, AEQI; Alan W. Taylor, Chief, Soil Nitrogen and Environmental Chemistry Laboratory, AEQI; and with EPA's Pesticide Chemistry Laboratory at Beltsville.

England--Dr. G. G. Briggs, Rothamsted Experimental Station, Harpenden, consulted with Charles S. Helling, Pesticide Degradation Laboratory, AEQI, on modeling adsorption and movement of chemicals in soils.

Philippines--Recently, Dr. E. D. Magallona, Chairman, Entomology Department, University of the Philippines, spent 1 week visiting Charles S. Helling and other members of the Pesticide Degradation Laboratory, AEQI, discussing pesticide residue research. Additional visits were made to the AEQI laboratories of Kenneth R. Hill (Analytical Chemistry); Jack R. Plimmer (Organic Chemical Synthesis); and Alan W. Taylor (Soil Nitrogen and Environmental Chemistry).

Switzerland--On August 27, Dr. Bruno Betschart of the Swiss Tropical Institute, Basel, visited K. Darwin Murrell, Chief, Nonruminant Parasitic Diseases Laboratory, API, and Joseph F. Urban of the same lab. Dr. Betschart is a biochemist whose research is concerned with the cuticular antigens of nematode parasites. He discussed Dr. Murrell's research on the immunochemistry of the nematode epicuticle and observed Dr. Urban's work on the metabolic antigens of Ascaris suum.

VISITOR UNIT QUARTERLY TABULATION:

During the quarter ending September 30, 1982, the Visitor Unit reports the following information:

No. of Visitors	High Level/Professional Groups/Individuals	Students	Other	Countries Represented
3,026	754	612	1,660	68

P. A. Putnam

P. A. PUTNAM, Director
Beltsville Agricultural Research Center



United States
Department of
Agriculture

Agricultural
Research
Service

Northeastern Region
Beltsville Agricultural
Research Center

Beltsville, Maryland
20705

NOTES FROM THE DIRECTOR

No. 140

November 30, 1982

NEW BRASSINOSTEROIDS ISOLATED

Since the discovery of brassinolide by ARS scientists in 1979, several research groups in both the public and private sectors have vigorously explored the significance of this discovery for improving crop productivity. Special emphasis has been placed on the isolation, synthesis, and evaluation of brassinosteroids (steroids possessing brassin activity) from sources other than pollen. Beltsville scientists have been very active in establishing structure-activity relationships for these steroids.

A U.S. Patent covering the preparation of these brassinosteroids was recently awarded to USDA. Limited greenhouse and field plot experiments suggest that brassinosteroids offer the potential to increase crop yields and biomass as well as enhance early maturation of certain crops. Several variables such as formulations, dosage, time of application, etc., need to be more thoroughly evaluated before the full potential of these compounds can be realized.

Following a recent meeting in Japan, N. B. Mandava, Plant Hormone Laboratory, PPHI, and Malcolm Thompson, Insect Physiology Laboratory, PPI, reported that Japanese scientists are making an intensive effort to evaluate brassinosteroids. A team of scientists from four Japanese universities, in collaboration with industry, disclosed the isolation of five new brassinosteroids, bringing the natural brassinosteroid number to seven from plant sources.

Results of ARS studies, coupled with those of Japanese scientists, indicated that brassinosteroids occur widely in higher plants (over 40 plants evaluated, including rice and tea). They are present in all parts (pollen, seed, shoots, root, and leaves) of the plant. The steroids exhibit unique biological properties different from other plant hormones and appear to have a wide functional role in plant growth and development. It appears, moreover, that nucleic acid metabolism may be regulated by brassinolide. Although some of the early results are preliminary, this appears to be an important field for future basic research.

DOCUMENTATION CENTER ESTABLISHED FOR BIOLOGICAL CONTROL

The need for a national biological control documentation center has long been recognized by scientists throughout the country. For nearly a century, insects and other beneficial organisms have been introduced and liberated in the United States without adequate documentation.

Honors and Awards

Quality Within Grade Increase

Ethel A. Comer, Systematic Entomology Laboratory, IIBIII

Safety

Every Employee a Safety Officer - Seven American workers die and more than a thousand Americans suffer injuries every working hour because of job related accidents. The trouble is that people are by nature optimists. They don't believe accidents can happen to them. Accident statistics prove not only that they can happen but also that they do. What can you do? Become your own Safety Officer and help BARC achieve and maintain a good safety record.

Special Programs

Plant Introduction and Exchange, PGGI - BARC has been the focal point for the introduction and international exchange of plant germplasm since 1942. This function as performed by the Principal Plant Introduction Officer and closely allied activities reflects a precise scientific accomplishment. It surpasses any effort along similar lines elsewhere in the world. The genetic resources that permit our plant breeders to increase crop productivity, protect against ravages of pests, and improve quality are being continually brought in from abroad as plant introductions. Exchanges assist foreign research programs and frequently provide an entree to genetic resources not previously available throughout the world. The USDA Plant Inspection Station, which involves a close relationship between ARS and APHIS, is an integral part of plant introduction and exchange. Over the years, many crop cultivar pedigrees show one or more plant introductions. A number of outstanding collections and individual plant introductions have resulted from efforts of persons directly involved in this program at the Center. This program provides a vital service to crop scientists. Its national and international impact will continue.

Recent Research Accomplishments

New Technique Evaluates Hidden Damage to Tomatoes - Light-transmittance can be used to evaluate internal damage to tomatoes and may lead the way to better tomatoes in the market place, reported John T. Worthington, Horticultural Crops Marketing Laboratory, AMRI.

The non-destructive technique, electronic infra-red light transmittance, could be used to assess the amount of internal bruising in tomatoes that occurs in each step of the marketing process. The technique could also be used to help tomato breeders evaluate new varieties for their susceptibility to damage, to sort tomatoes for maturity, and to detect chilling injury in tomatoes exposed to excess refrigeration. To test tomatoes for internal damage, a special instrument is used that transmits light through the fruit. Changes in density indicate changes in the internal structure caused by bruising. Mechanical damage to tomatoes is an additive process from the

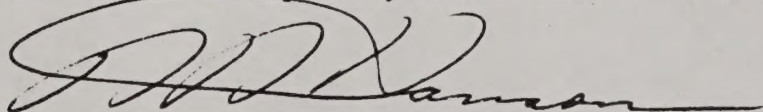
Ph.D. from Cornell University: He was a Fulbright Fellow at the Netherlands Institute for Agriculture, Wageningen, The Netherlands. He joined ARS as a Research Horticulturist (Ornamentals) in 1956. In 1967, he was appointed Leader of Ornamental Research. Concurrent with the reorganization, he became Chief of the Ornamentals Laboratory.

His personal research has included the roles of phytochrome in controlling the flowering of chrysanthemums; the physiology of growth retarding chemicals and their practical applications on plants; a revolutionary technique for reducing electrical costs for obtaining photoperiodic control of the growth and flowering of ornamental plants; the use of lower alkyl esters of fatty acid derivatives in aqueous emulsions to selectively kill the stem apex without damaging the lateral meristem, foliage, and stem tissues; procedures for germinating seeds of 112 different kinds of annual, pot plants, and ornamental herbs by separating them into nine groups based on their response to light and temperature; the techniques for the first commercial use of 2-chloroethane-phosphonic acid (ethephone) in regulating the flowering of bromeliads; the use of tolerant cultivars and chemical growth retardants to significantly alter injury to ornamental plants by ozone and sulfur dioxide, the use of synthetic abscisic acid to alter the photoperiodic responses of several important ornamental plants; and the application of chemical growth retardants through the use of ultra-low volume equipment. He is a world authority and advisor on growth regulating systems and culture of ornamental plants. He received a Certificate of Merit from USDA and is a Fellow of the American Society for Horticultural Science. He was elected President of the American Horticultural Society for 1974.

Dr. Meryl N. Christiansen, Chief, Plant Stress Laboratory, was born in Iowa and received his B.S. and M.S. from the University of Arkansas and his Ph.D. from North Carolina State University in 1960.

He joined ARS in 1955 following completion of his M.S. as a Research Agronomist at Stoneville, Mississippi. He completed his doctorate while on leave from ARS and returned to Stoneville as a Plant Physiologist. He transferred to Beltsville in 1964. Concurrent with the reorganization he became Chief of the Plant Stress Laboratory, PPHI.

His personal research has included genetic heritability of the physical and chemical block to water entry into cottonseed with impermeable seedcoat; a dry weight transfer test to measure performance of germinating seedlings in terms of mobilization of seed reserves, translocation of reserves to seedling axis, and re-synthesis into axis components; two types of chilling injury to cotton seedlings; hydration of cottonseed to prevent chilling injury; use of calcium to reverse losses of endogenous substances from radicle tips induced by environmental stress and the use of metflurzone (Sandoz 6706) to inhibit chloroplast maturation and circumvention by use of unsaturated C18 fatty acids or vitamin E. Dr. Christiansen is a member of and has held offices in several professional societies. He is an international authority on cottonseed quality measurement and preservation, and germination physiology.



A. A. Hanson, Director
Beltsville Agricultural Research Center

